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approach

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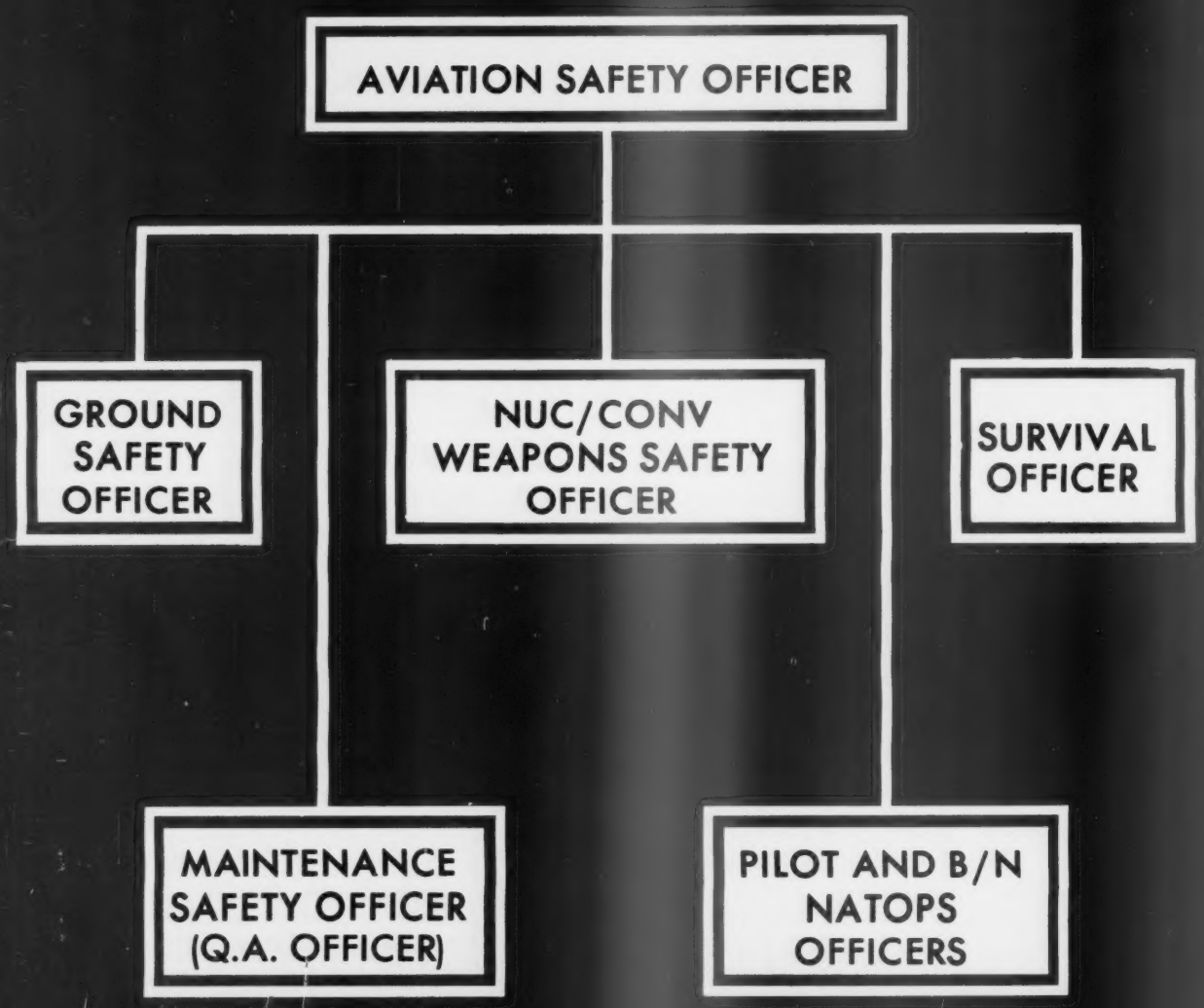

AVIATION SAFETY OFFICER
GROUND SAFETY OFFICER
NUC/CONV WEAPONS SAFETY OFFICER
SURVIVAL OFFICER
MAINTENANCE SAFETY OFFICER (Q.A. OFFICER)
PILOT AND B/N NATOPS OFFICERS

An Evaluation by VA-65

HISTORICALLY, the position of the aviation safety officer within an organization has been rather vaguely defined. Although many workable and realistic programs concerning safety have been established, there appears to be a definite lack of standardization. All too often, we hear statements like "every officer a safety officer" that are supposed to lend themselves to safe operations but, in effect, leave the aviation safety officer with no more to work with than before. Too often, the ASO has become a figurehead within the squadron, often doing little more than keeping up the safety board and reading safety messages or articles from APPROACH at AOMs.

To many, he was the old maid or super-cautious man in the squadron and was sneered at by the rest of the tigers who couldn't wait to get away from the old safety b.s. and leap into the blue. The safety officer was too often at odds with the operations officer over such intangibles as tempo of operations and fatigue. The ASO historically had nothing to do with the maintenance officer since his billet didn't reach into the never-never land of 4790.2. The maintenance department would rather handle its own safety program and permit the safety officer only a casual glance. The ASO was also heavily outranked by both of those department heads and frequently others.

Things have changed, however. The cost of aircraft has spiraled; and the complexity of aircraft components, test equipment, and ground handling equipment has increased tremendously while the number of available technicians has steadily decreased. We have learned a little more about human factors. All of these changes demand adjustments to our organization.

Philosophy

In VA-65, the safety program is designed to enhance mission accomplishment and to maintain its operational readiness at the highest possible level through the conservation of manpower and material. The idea of bringing safety out into the open as a direct, tangible, management tool of the safety department in a functional organization can only enhance the mission effectiveness of any organization or unit. Too often, operational readiness is established *despite* safety rather than *through* safety. But this must be accepted as a temporary method of operating vice a sustained, effective method.

It is germane to state that the most effective aviation squadrons are invariably the safest. Since this is true, how can any organization function effectively without a specific management tool to facilitate safe operations? In VA-65, the safety department (see Fig. 1) has been substituted for the safety officer and has become the management tool which ensures that operations are performed in the most effective and safest manner.

There are several key billets within this department, the functions of which must be understood. For the safety department to be effective, it must have a strong voice in the operations of the squadron, a checks and balance relationship.

For instance, the pilot NATOPS officer and the B/N NATOPS officer ordinarily work for the operations officer. These officers ensure that crewmembers are trained effectively by the operations department. If they are to criticize the work of the operations department, however, they cannot be expected to perform effectively if they work directly for Ops. While working for the safety officer, however, the NATOPS officers have the latitude necessary to candidly evaluate the performance of crewmembers. They are not bound by any parochial concern, but are left free to be as objective as is necessary to properly perform their duties.

The *ground safety officer* is a new billet tasked to ensure that all ground operations (refueling, vehicle operations, hangar operations, etc.) are conducted in a safe and efficient manner. He should be a mature officer and a safety school graduate. To assist him, collateral safety petty officers have been designated from each work center. These men, mature petty officers, can be a valuable asset in training newer men to respect the equipment with which they work and in ensuring that proper protective clothing is worn at all times. Certainly, great strides have been taken in this area within the command since a ground safety officer and his assistants have been added to our organization.

The *maintenance safety officer* also serves as the QA (quality assurance) officer within the maintenance department. Some consideration was given during the original reorganization to placing the QA officer solely within the safety department. This was discarded due to conflict with 4790.2. A case can still be made for QA

being in the safety department, however, and this theory merits further study.

The *maintenance safety/QA officer* must also be carefully chosen since his performance is the key to an effective maintenance safety program. He provides the checks and balances within the maintenance department, and his rapport with both the maintenance officer and safety officer must be closely maintained. The men with whom he works, both the QARs and CDIs, must be handpicked and must be the most respected men in each work center. The commanding officer must personally interview and approve all QARs and CDIs. This is necessary to ensure that after each maintenance action is completed, it is properly inspected and approved. This is a perfect example of where safety can be accomplished through professionalism.

The *nuclear/conventional weapons officer* is another key billet. His primary functions are to ensure that the nuclear weapons training officer (operations department) and the ordnance officer (maintenance department) are conducting effective training programs.

Organization

Squadron instructions outline and describe the VA-65 organization and safety program. The relationship of the safety department to other departments in the squadron is clearly defined. Responsibilities and overall squadron goals revolving around safety are further amplified. There is one significant change within the safety department that is being initiated. The nuclear/conventional weapons safety officer is being upgraded to a primary vice a collateral duty billet. His billet description will be expanded to include overall responsibility for the updating of all tactical publications/directives and safety precautions within the command and to ensure that discrepancies in tactical publications (i.e., manuals and checklists) are properly UR'd in accordance with OPNAVINST 4790.2.

Organizational Advantages

The foremost advantage of having a safety department is that it affords the commanding officer a management tool directly under his command that is dedicated to preserving those assets assigned to him. This is not a revolutionary idea. The Federal government has long recognized the need to impose requirements on industry to force organizations of any size to initiate management tools to control their respective occupational safety atmosphere.

The second most obvious advantage arises out of "sharing the wealth" between respective department heads. It makes a lot of sense to require the operations officer or maintenance officer to defend his position, *vis-a-vis* safety in open dissension with a departmental equal during frequent exposure to the high tempo of operations commonly experienced in fleet organizational units. A safety department furnished with proper assets and direction can help to ensure that command safety motives and requirements are successfully represented and implemented.

The third advantage is simply that the safety department concept is organizationally sound. We have all been presented with fallacies in having too many "checkers" or "watchdogs" within an organizational structure, resulting in general inefficiency. This may be true in specific organizations, but when submitted to the attack carrier environment and state of the art weapons systems used by fleet units, there is no other direction to turn to but quality. Quality in personnel and quality in material can be attained only through professionalism. This word may indeed be construed as a synonym for safety, and that is specifically why we seek to attain as the primary objective of the squadron, "readiness through safety."

The most glaring initial disadvantage is the "resistance to change" that some units experience when required to change organizational structure. This resistance might well exist at the department head level within the organization. This, however, did not occur in this command. If such resistance does occur, it can certainly be negated through proper command guidance and the realization that a unit's effectiveness will be enhanced if the reorganization is given a fair chance. The safety department, as implemented in VA-65, serves to assist the operations and maintenance departments in the accomplishment of the squadron mission. Examples of this vary from the total responsibility of the NATOPS program down to the basics of ensuring that safety petty officers within individual work centers *understand* their responsibilities and *strive* to fulfill them. There have not been additional disadvantages observed.

Effectiveness

The idea of initiating a safety department within a squadron organization can be summed up in two words when addressing its effectiveness: command backing. Obviously, any new organizational concept must have specific guidelines when novel relationships are formulated. When established, these guidelines must be adhered to. This requires close command attention. Officers and men assigned to the department must be mature, motivated, and experienced if the department is to attain the desired objective. The overall effect of the concept has been extremely encouraging and is continuing to provide the commanding officer with a management tool previously nonexistent. ◄

Who's Next?

AN AFS almost lost her H-46 last year under near-identical conditions to the loss reported in "Thar She Goes" (APPROACH Sept 1972).

A decision was made to spot the helicopter on the flight deck, so it was muscled out of the hangar. The ship had been rolling 10-15 degrees, but during the spot, it rolled 20-25 degrees port. This heavy roll caused the helicopter to slide across the wet flight deck out of control.

The aircraft had been aligned 30 degrees to port of the ship's centerline, and the nosewheel had been turned about 60 degrees port to align the aircraft on centerline. When the ship took the big heel to port, the copilot applied brakes, but brakes alone couldn't stop the helo's slide. With wheels locked, it pivoted around the port MLG and slid toward the deck edge.

Just in time, the ship stabilized and began righting to starboard. As the helo's slide was arrested, the flight deck crew threw in wheel chocks and chained it down. At the time, winds were 40-45 knots, and sea state was 6, with continuous rolls.

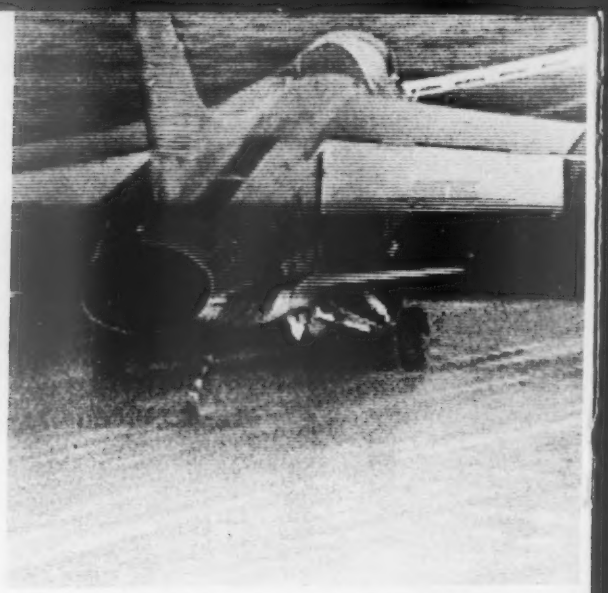
The interval between "Thar She Goes" and this mishap was about 6 months. The conditions were so close to being the same, it's kind of scary to think it may be other than coincidental. For instance:

- Both helos were H-46s
- Both were being muscled from the hangar
- Both mishaps occurred onboard an AFS
- Both ships were experiencing continuous 10-15 degree rolls
- Both helicopters slid to port
- Handling crews were qualified and numerous
- Both crews included brakeriders and chockmen

The only real difference was that the last mishap didn't end with the helicopter over the side.

To prevent similar mishaps, personnel aboard nonaviation ships should perform periodic flight deck inspections to ensure that the nonskid surface is satisfactory and effective. Also, prudence dictates that metal chocks be available and used. Other ships can profit from the recommendation that chains be attached to the helicopter throughout spotting evolutions when hazardous or questionable sea conditions exist. ◄

Over the Side



THE EJECTION was normal; seat-man separation and parachute deployment worked as advertised. Landing in the water abeam of the ship to port, the pilot freed himself from the chute and inflated his LPA-1. Within 4 minutes, he was picked up by the plane guard helo, in good condition.

The *Corsair II's* approach and arrestment had been normal. LSO comments were: "Fair, overcontrolled a little on low start, fast in close, nosedown to land, three wire."

On rollout, the pilot reduced power to idle and raised the tailhook handle. The tailhook didn't retract, so the air boatswain hustled his crew out to the aircraft.

The blue shirts manually lifted the A-7's tailhook and disengaged the crossdeck pendant. The tailhook remained down. The pilot received the signal to release brakes and come right to clear the landing area. At this point, the nosewheel was cocked about 100-110 degrees port and the aircraft's nose was pointed 10-15 degrees left of centerline.

As the A-7 began to roll left, the pilot was given the hold brakes signal. The pilot tried the normal brakes, but got no braking action. He then attempted to pull the emergency brake, but in the confusion, could not locate it. The aircraft continued to roll port and struck the deckedge coaming. The nosewheel jumped the coaming, and as the nose pitched down, the pilot ejected using his face curtain (see photos).

The flight had commenced 2 hours earlier when the pilot launched on a postcalendar inspection checkflight. The pilot, a designated PMIP (postmaintenance inspection pilot), was briefed by the quality assurance CPO on the flight's requirements.

During the flight, a number of discrepancies were noted; however, none of them could be related to the accident. One of the final checks on such a checkflight required the extension of gear and flaps by the emergency method. The pilot chose to execute these checks during entry to the carrier landing pattern. (It should be pointed out here that the NATOPS Functional Flight-Check Checklist, calls for them to be performed at 5000 feet.)

This method of pattern entry had been a regular practice for many of the squadron PMIP's. It was generally conceded, however, that to blow the gear and flaps down in the standard CVA Case I landing pattern takes considerable dexterity, but "we should all be able to hack it."

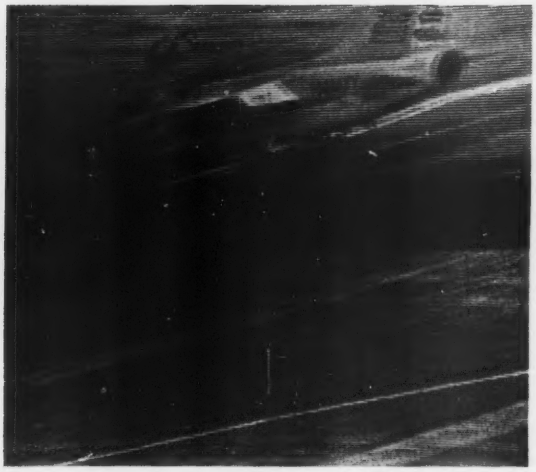
The checkflight A-7 entered the break as No. 3 in a three-plane flight with two other squadron aircraft. After breaking, the pilot blew down the gear and flaps, but had to vary his airspeed to get the landing gear to indicate DOWN.

The NATOPS Flight-Check Checklist (NAVAIR 01-45AAE-1-6, step 11, page 38) requires that the flap handle be left in ISO utility, the gear handle be placed down after the nose gear has fully extended, and finally, the flap handle be placed down.

The pilot stated that while following these procedures, he became distracted by a call from the tower regarding F-4's taking priority because of low fuel. His attention was diverted while looking for other aircraft and establishing pattern interval. He apparently forgot to place the flap handle down.

Another factor to be considered is that in preparing for a carrier landing, the pilot must clean up the cockpit so that loose gear doesn't fly around during arrestment. It's fair to assume that some time prior to the break, the NATOPS Checklist had been put away and the pilot was executing procedures by memory. It should also be pointed out that there are no visual cues to indicate when the flap handle is in ISO utility.

A visual check of the landing gear indicators, flap indicators, and wheels/flaps warning light would provide no warning. They would all indicate safe, thus satisfying the normal landing checklist. (Of note, the flap handle is not readily visible by the pilot in his normal sitting position.)



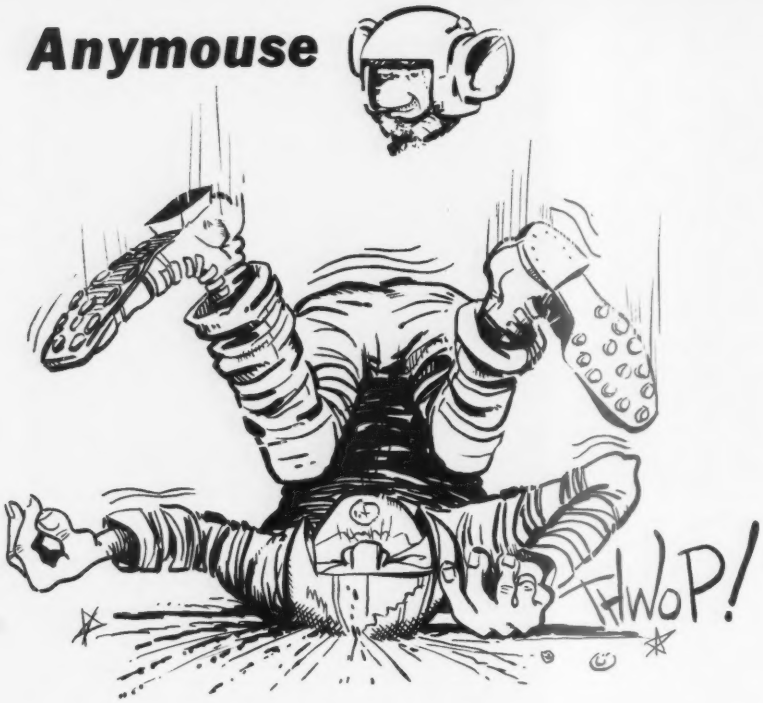
The pilot stated he didn't remember placing the flap handle down. This is important because when the flap handle is in ISO utility, PC-2 hydraulic pressure is isolated from the following systems:

- Landing gear
- Flaps
- Nose gear steering
- Normal brake system
- Wingfold
- Launch bar
- Tailhook (retract)

Because of the loss of the aircraft at sea, the mishap board was unable to determine positively that the flap handle was left in ISO utility. Because of the evidence presented above, however, the board concluded that the pilot became distracted in the landing pattern and probably left the flap handle in that position. Consequently, he lost control of the aircraft coming out of the gear.

Careful completion of checklists pays off... especially after being distracted or when under pressure. ◄

Anymouse



Helmet Save

FOR those of you tailhookers aboard CVAs, CVSs, CVTs who think that strolling down the flight deck sans flight helmet on your noggin' is cool, let me relay some hardheaded facts to you cool cats.

The month was October. The scene was aboard CVA NORTH SEA. The weather was beautiful – 3000-foot ceilings, 5 miles vis, rain light to moderate, sea state moderate to heavy, air temp. 20°F., and sea temp. 40°F. My pilot and I had just completed briefing a typical night surveillance North Sea evolution. Naturally, our *Intruder* was spotted on the bow of the ship. We emerged from the warm confines of the ship with much anticipation and, nonetheless, much anxiety. Clothed in those well-fitting antiexposure suits, flight gear, and donning our flight helmets, we struggled down the flight deck towards our aircraft, fighting heavy winds, total darkness, and the wet, pitching flight deck all the way.

Preflighting our A-6 was as normal as could be expected for a night such as this. As I was approaching the edge of the flight deck to check the security of the "birdcage," however, the normalcy of the preflight ceased. Engrossed in my inspection of all the fittings as I was, I failed to really notice just how close I was to the edge of the flight deck and the swirling cold water below. I was rudely awakened to all of this moments later. All I remember was that one moment I was on the flight deck, and the next moment I was picking my battered body up from the starboard catwalk where I had landed smartly on my head after the ship took a nice starboard roll. Dazed, but otherwise unhurt, I next remember thanking my lucky stars for having my flight helmet on. Without it, I would have probably put a large dent in my head. Shaking the bump off, I soon got back into operation and manned the aircraft and completed the mission assigned. "Oh thank heaven" for those flight helmets!

Hard
(but not that hard)
Headed Mouse

On wearing your hardhat on deck, those were good words. But picking your dazed body up from the catwalk and launching – well, only you know whether you would have been ready for an emergency off the cat – a trip to the flight surgeon might have been a better choice.

The Next Signal Is For Real

PILOTS and aircrewmen are familiar with the dangers of flying with rolled-up sleeves. Well, here's a twist. You don't have to be on fire for this bad habit to get you in trouble.

The helicopter was turning up, and the pilots were completing the takeoff checklist. The copilot remembered his sleeves were pushed up above his elbows and extended one arm at a time to slide his sleeves down.

In a millisecond, the ICS exploded when the pilot hollered,

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT,
PREVENT AN ACCIDENT

"Whereinhell are they going with our chains?" Yes sir, the chockmen mistook the copilot's "signal" and pulled the chains. Fortunately, the ship was steady on course, seas were calm, and no damage or injuries occurred because of premature chain removal.

The hand signal to remove tiedowns has been around a long time. Rolled-up sleeves on flight suits have been around a long time, too. Which will endure? Perhaps we need a hand signal which means *the next signal is for real.* Or, change the present signal to one less apt to be inadvertently rendered.

Nonaviationblackshoemouse

Sure, it's hip to have your sleeves high during the walkaround, but once inside the bird, who's gonna take note? C'mon fellows, think! This nomex stuff has to be spread out to protect you – don't roll it up.

Why Controllers Get Gray

ON numerous occasions at Naval Station, Adak, Alaska, pilots of transient aircraft, unfamiliar with the airport, have made approaches that turn controllers' hair gray. These pilots seem totally unaware of the mountainous terrain surrounding the runways and have had several near-collisions thereabouts.

I really feel that these individuals have never studied the airport or its approaches (particularly circling approaches), and as a result have not only aged the tower controller, but themselves as well. At this rate, I feel a disaster is inevitable, but with a little extra effort on the part of transient pilots, I feel it could surely be averted.

I wholeheartedly recommend that all pilots include, as part of their preflight, a thorough eyeballing of all charts (including topographical VFR charts which are invaluable in mountainous terrain). This would certainly alleviate the problem of breaking out on approach and suddenly having to wonder where you are . . . and worse yet, wondering where all those mountains are. Besides, I'm aging at a much faster rate than I should.

Towermouse

You laid it on 'em; let's hope they pick up on it.

LOX Hazard

WHILE on a cross-country flight from NAS Meridian to MCAS El Toro in a T-2B, we made an enroute stop for servicing. We went inside Ops to check the weather, and when we returned, the ground crew was still servicing the LOX system.

Being familiar with the hazards of LOX, I stayed what I considered a safe distance away. I was standing behind the starboard wing, leaning on the trailing edge, casually watching. Just before the LOXing was completed, LOX began dripping quite profusely from the nozzle connection (no drip pan used). Because the operation was nearly completed, I just stood there and continued to watch the LOX drip onto the ramp.

Then it happened! An F-4 taxiing in front of our aircraft turned and blasted us. It took the stream of dripping LOX and sprayed it aft. I ducked just in time to miss a face full.

Dumbmouse

This incident shows how dependent we are on our shipmates for our safety. You took the precaution of remaining some distance away from the LOX operation, yet, if someone had been injured, one of the factors would have been "supervisory error" – yours, for not stopping the show immediately. ◄

The Care and Handling of ETS*

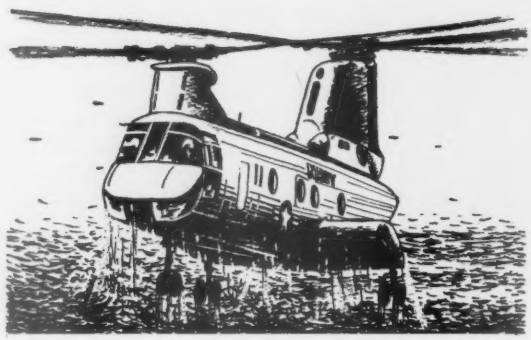
By LCDR Don Mohr

"HELICOPTER in the water, starboard side USS Boat!" the word blared over the 1MC. Arriving on the flag bridge, I witnessed one of the most gratifying of all sights. A heavily loaded CH-46D *Sea Knight* was just lifting out of the water amid a profusion of spray from the rotor wash. Proceeding toward the beach at low altitude, it looked as if indeed "Davy Jones" had been cheated out of another CH-46 through timely and skillful application of ETS. This was no small feat, for single-engine departures from the open sea are rare occasions indeed.

As the helicopter approached the beach, it turned parallel to the surfline and commenced an approach to the hard, water-soaked sand. Flaring to reduce forward speed at about 75 feet, the good engine belched the familiar gasp of white smoke out the exhaust, and the H-46 touched down harder than anticipated. Premature engine shutdown due to an overspeeding engine/rotor condition struck another pilot right in the "ninth inning." An outstanding job of airmanship to save the aircraft was unfortunately marred by overspeeding the engine and possibly damaging the helicopter because of a hard landing. Certainly a worthwhile and undisputed trade – an expensive aircraft for an oversped engine – but certainly this option shouldn't always have to be the prerequisite.

Too often it is noted that successful, bonafide emergency, ETS operations culminate in the frustration of premature engine shutdowns precisely when the power is needed most – due primarily to the pilot's failure to maintain RPM within prescribed limits. This is because it is easier for a pilot to control rotor speed during a rotor loading (takeoff) situation than during a rotor unloading situation (landing). This has cost us CH-46s as well as other helicopters, and the trend may well continue.

One possible solution to this problem includes examination of the continuing requirement for ETS. Certainly no one would argue against employing all the power necessary or available from an engine to extract the helicopter from an *extremis* situation. Once safely airborne and at altitude, however, an attractive option may exist which appears to be seldom considered. That is, must the engine continue to be operated on ETS, or may the engine be returned to automatic fuel metering? By activating the ETS reset select switch to ON, and holding for 6 seconds, the changeover can be accomplished, and full power (topping) will still be available for the landing without the requirement for constant trimming to maintain the rotor speed within strict limits.



A quick assessment of the power requirements can determine if a single-engine, PMS off, operating capability exists. If you observe performance instruments at or above topping power (101 percent Ng or 721° T5), no option exists. If, however, lower power levels are satisfactory and a running landing can be made, certainly no requirement exists to remain in the ETS mode of operation. By transitioning back to the automatic system of fuel metering, the pilot is relieved of the responsibility of being a manual fuel control and can devote full attention to the landing. Best of all, however, should his technique not be "right on," he will not encounter premature engine shutdown just when it is needed the most.

The emergency throttle system has proven repeatedly it can and will deliver substantial power over and above rated horsepower. With this increased capability though, it is the pilot's responsibility to properly control this power under all conditions. In many instances, as on landing, this may entail considerable technique precisely at a time when a pilot's attention is required elsewhere. Repositioning the ETS switch may solve some of these situations.

Maintenance on the system also may dictate the success or failure in that moment of truth. Rusted fuel control actuators cause intermittent operation at best, and water entering through open or leaking hatches can short out the system with catastrophic results (full increase beep trim input). These are just two things maintenance should be alert for. Power has to be available when and if required to bring back that bird, and more importantly, the men who fly in her.

* Emergency Throttle System

Bravo Zulu

LTJG George Moe

LTJG Moe, a VFP-63 fleet replacement pilot, was returning to NAS Miramar in his *Crusader*. He had completed an ACM training hop and was being vectored to a GCA.

At 5000 feet while in IMC, he was directed to turn right, descend to 4000 feet, and conduct his cockpit landing checks. While in a descending turn at 4700 feet and 220 KIAS, he lowered the landing gear. As he unlocked and raised the *Crusader's* two-position wing, the aircraft began to roll rapidly to the right.

Using both hands because of the high stick forces, he was able to keep the aircraft between a 45-degree and 90-degree angle-of-bank. He was unable to make power changes because both hands were needed to control the aircraft. Using full left rudder and both hands, he was able to establish control to the extent that he could free one hand momentarily to secure the stab and BLC systems. During this time, his altitude, heading, and airspeed were changing rapidly.

In a steep descent, LTJG Moe broke out of the clouds at about 2000 feet with the runway in sight. Able to make quick grabs at the throttle, he determined he could land the aircraft. He attempted to make a short-field arrestment, but the hook skipped the arresting gear. Nevertheless, he was able to stop the aircraft on the 12,000-foot runway.

Subsequent inspection revealed that broken bolts had caused the left aileron actuator to loosen and deflect the control surface to full right-wing-down. The potential for this condition was found in a number of other aircraft inspected. Thus, LTJG Moe's action in saving the aircraft possibly prevented other losses.

LTJG Moe is commended for an exceptional display of airmanship. Handling an emergency of this nature in IMC is a true reflection of professionalism.

Well done!

"Check Chocks, Tiedowns, . . ." (and NATOPS)

By CAPT R. R. Wilkins, USMC
NATOPS Officer HMM 261

It's your first trip to the "boat," your home away from home – chow, a hot shower, and a few hours of sleep. It's small and undulating and the biggest challenge to your experience.

"Candy Cane Tower, this is Elvis 01 with three, 2 miles astern."

"Roger, Elvis 01, your signal is Prep Charlie, wind 30 degrees port at 10 knots. Report the break."

Here we go now, tighten up the formation, close it up from cruise to parade. You've done this time and again, but it always makes you feel good after you've done it just right. There . . . gear equidistant, stub wing split by the bottom of the fuselage.

"Tower, Elvis 01 for the break."

"Roger, Elvis. You're cleared to break . . . "

"02 for the break . . . "

"02 cleared . . . "

There he is, 01's breaking . . . count 3 seconds then roll it over . . . one thousand, two thousand, three thousand – roll it left! That's it, rapid, but smoothly – all of 45 degrees, but it feels like 90 as the "G" takes hold. Easy now, hold your altitude. The crewchief says you're across the bow. Roll out and there it is, 300 feet and 80 knots. Not bad! And the ship's about ½-mile ahead and 400 yards abeam.

"Tower, 01 abeam."

"Roger, your signal Charlie."

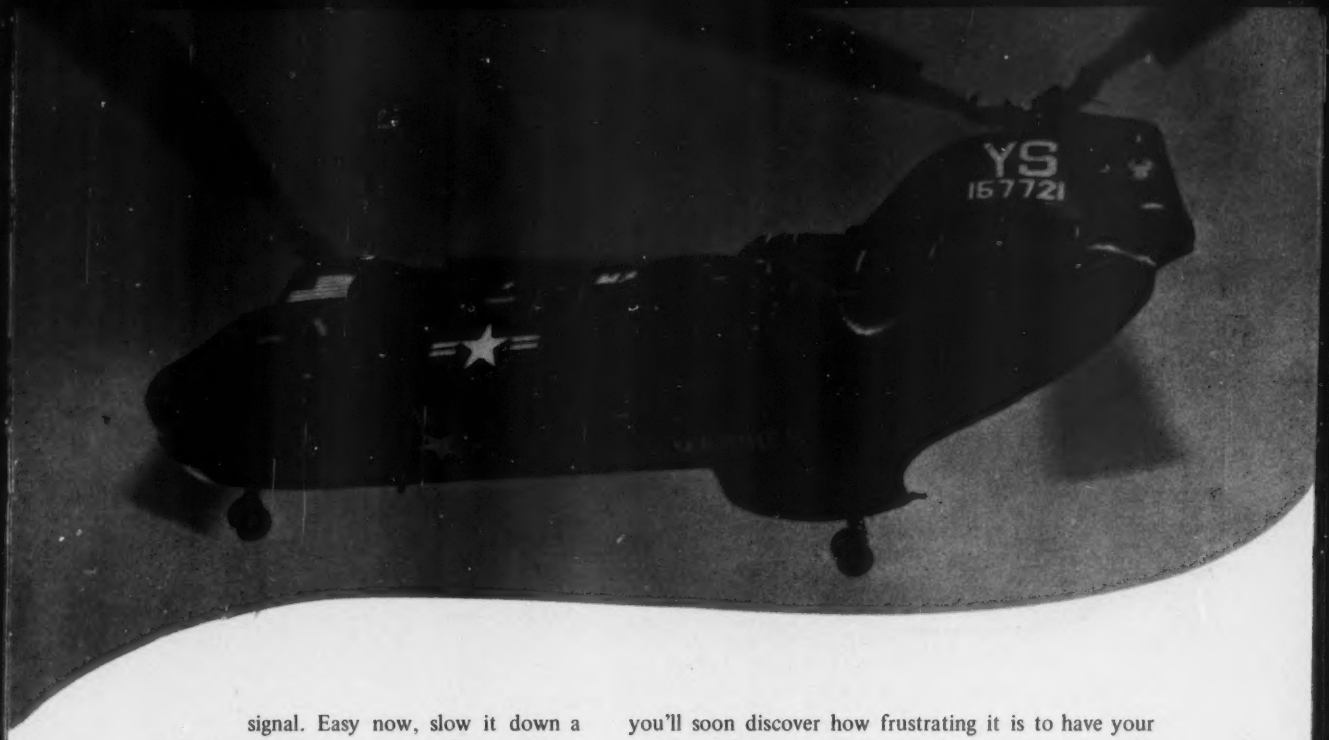
Now it's your turn! Even though you've done it before on dry land, this is the real thing. Remember to lead the spot for the wind.

"Tower, 02's abeam, right seat!"

"Roger 02, your signal is Charlie spot 3, wind – 20 degrees port at 10."

"Roger, spot 3."

Here we go. Power down, 300 to 500 fpm – roll it in 15 to 20 degrees – add a tad back stick to slow it down. Hey, it really works! Hold that turn – don't get steep at the 90! Through the 90, 55 knots and 125 feet, rotater out . . . ! Lookin' real good! Okay, there's your LSE, right and forward of the spot with the "Roger"



signal. Easy now, slow it down a little more, but keep it coming. Easy, get your power under you; add a little bit of left pedal for your alignment – little left cyclic . . . ! Hold it!!! He's giving you the hover signal . . . now down . . . easy, don't feel for the deck . . . there, you're down!! Not bad for your first shipboard landing!

What I've just described would be more familiar to a "46 jock" than the rest of the helo community, but it's basically the same. It represents the culmination of long and tedious training. It represents the first time that you've ever landed on a ship underway, a most demanding, but rewarding, and educational experience. Maybe exhilarating would be more descriptive.

What landing aboard means, other than a short separation from the beach, is a requirement for increased alertness and ability, and the full use of all prior training and experience. It means an extra-careful prelaunch planning session – from weather to checking the yellow sheets.

The load and weight chart must be carefully made out and strictly adhered to. It means a hover check, even if it's only for a second or two. Remember what you learned about losing your ground effect rapidly after crossing the deck edge. It could make the difference between a safe, normal takeoff or a swim in the sea.

When operating at sea, new things have to be learned, like light signals for "Ready APP," turnup, takeoff, loss of all radios, and lighting for landing. If you're not alert, you'll soon discover how frustrating it is to have your running lights set to indicate a landing from the right seat, and then find your LSE is on the left side. It means deep-sixing all the old LSE signals and learning a bag of new ones, or forgotten ones.

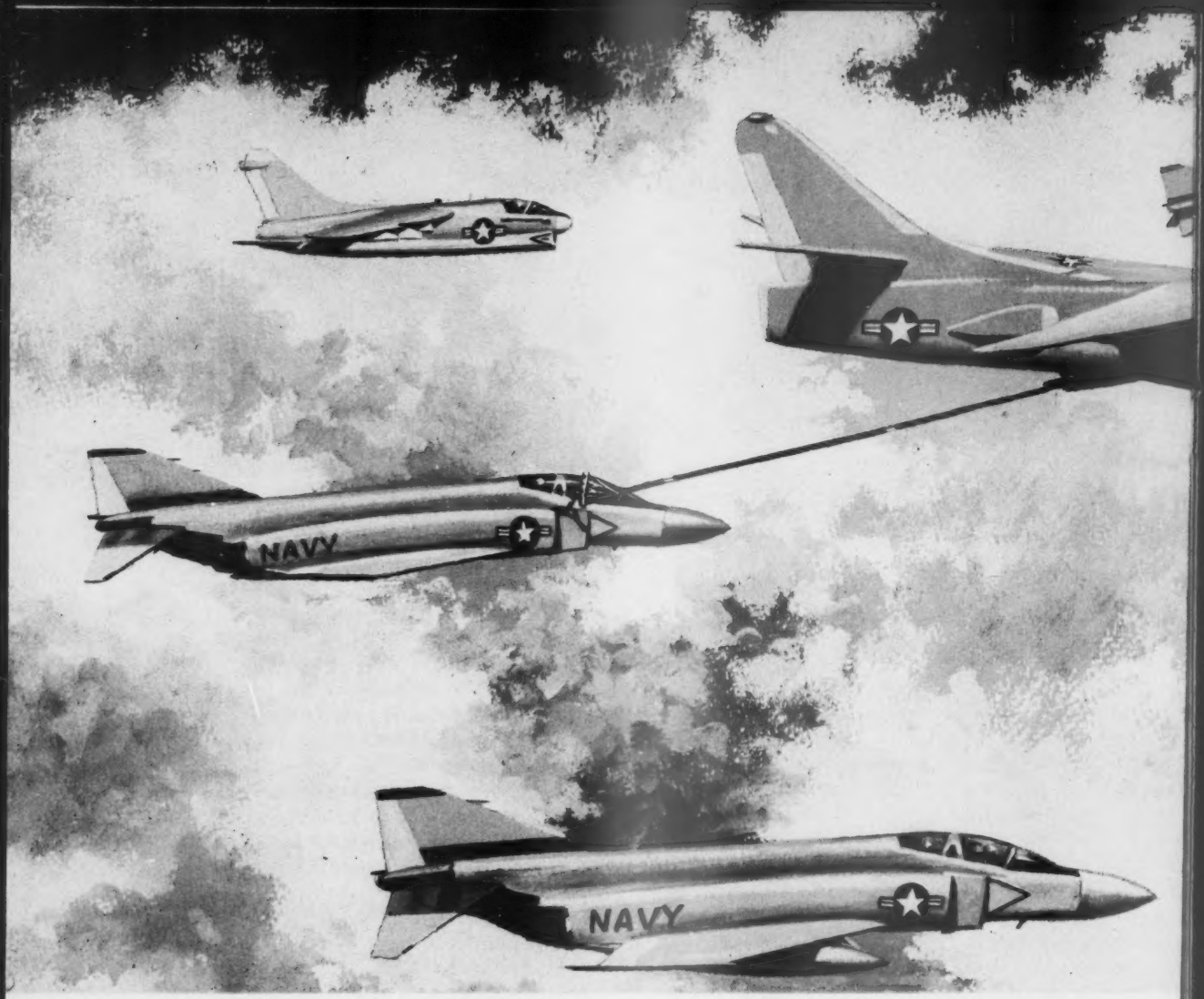
Shipboard ops require extra courtesy and patience in inexhaustible amounts. Early launches, late recoveries, and hours in the "delta" pattern are SOP. Rare are the "Field Grade" nights – it's mostly flying on the gages in front of you.

In other words, you're going to have hours of exhausting and demanding flying, but they will be most rewarding and enjoyable. That is, if you *carefully and strictly adhere to NATOPS*.

Prior to deployment, that "Blue Bible" must be read and reread until all procedures are safely stored in your memory bank. If any doubts exist as to certain procedures, a call on your friendly NATOPS officer is in order, for he can help straighten out the problem. One way to hone yourself to a fine edge and stay that way is through NATOPS. NATOPS is as indispensible to aviation as water is to life.

Each and every one of us must demand of ourselves the discipline to follow NATOPS to the letter. By doing so, we will continue to make Marine aviation the best around.

Think about that the next time you hear "Check chocks, tiedowns, firebottles, loose gear about the decks" – *check NATOPS*. ◄



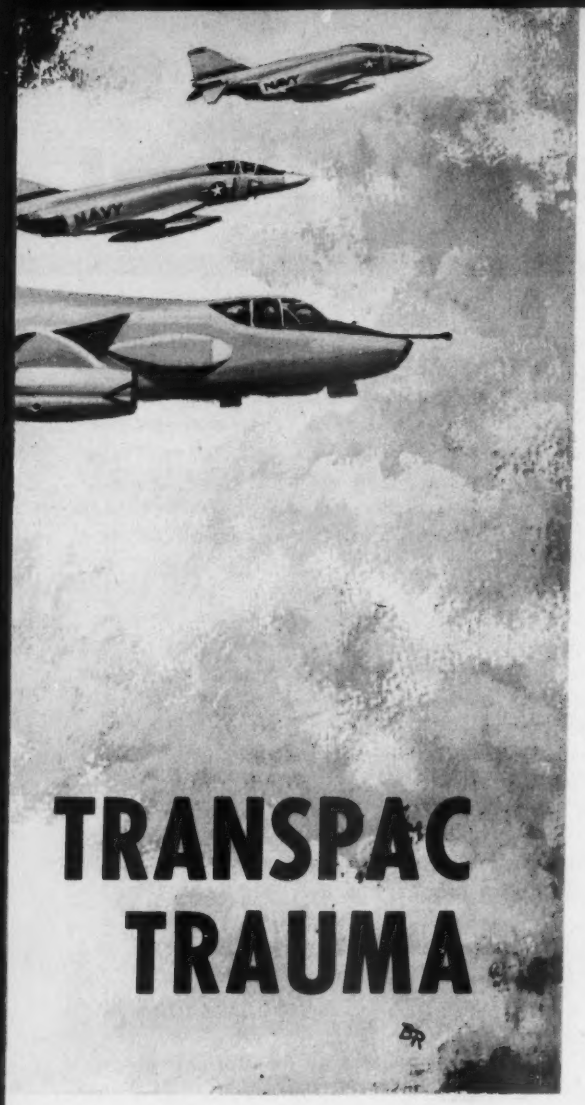
THE TRANSPAC flight briefed at 0800. The flight included four F-4Js, one KA-3 Pathfinder/tanker, and one A-7C. The weather was forecast to be no problem, with predicted headwinds at flight level (FL 290-310) to be 12 knots at departure, increasing to 30 knots at destination. The flight was warned that no airborne standby tanker would be available as they neared destination.

The first half of the flight proceeded normally, with all aircraft taking on their assigned amount of fuel at the air refueling control point from prepositioned tankers which then turned back toward their point of departure.

Shortly after mid-point, the A-3 began dumping fuel uncontrollably. The dumping was finally stopped, but not before the *Skywarrior* had lost approximately 10,000 lbs of fuel. This information was relayed to the returning tankers who were asked to notify destination to launch an emergency tanker to meet the flight.

While these events were occurring, the A-7 pilot informed the flight that his computer indicated headwinds greater than had been briefed, i.e., 75 knots, instead of 30 knots. The A-3 then climbed to FL 390 in an attempt to conserve his remaining fuel.

The A-3 started to fall behind the flight, possibly because of greater headwinds at that altitude. The flight leader elected to reduce the flight's airspeed from .80 Mach to .74 Mach to let the A-3 catch up. This decrease in airspeed caused the flight to consume more fuel, and after a period of approximately 15-20 minutes, the flight



TRANSPAC TRAUMA

resumed its max range speed of .80 Mach. At this time, the A-7 and three of the F-4s showed the flight approximately 60-70 miles north of course. The lead F-4, however, showed the flight slightly *south* of course and made no course correction.

Approximately 350 miles from destination, radio contact was made with the emergency tanker. The pilot radioed that he would position himself on the 067 radial at 167 nm from destination, at FL 310, somewhat south of the flight's original course.

At approximately 250 miles from destination, the No. 3 F-4 stated he had 3800 lbs of fuel. With the concurrence of the flight leader, the pilot jettisoned his tanks for minimum drag and maximum fuel conservation.

The flight leader, experiencing difficulty in receiving transmissions from the emergency tanker, passed the lead to No. 4. Upon rendezvous with the tanker, the flight was informed that each aircraft could be provided with only 1000 lbs of fuel. The tanker had to reserve some for the A-3 still 80 miles east. The low state F-4 (No. 3) took on 2000 lbs (again giving him a total of 3800 lbs). The other two *Phantoms,* with over 4000 lbs each, decided not to delay and tank, but to proceed to destination. *Climbing* to FL 400, they jettisoned their external tanks, performed an idle descent to destination, and landed with 1500 and 1000 lbs of fuel respectively.

Meanwhile, *Phantom* No. 3 climbed to FL 400 after receiving fuel and proceeded toward destination. Enroute, he passed an island with a suitable civilian airfield and decided to land. Departing FL 400 with 1800 lbs, he landed at the civilian field, refueled, and proceeded on to destination.

The fourth F-4, (after receiving fuel), and the A-7 (which required no fuel), proceeded to destination. The pathfinder A-3 followed shortly thereafter.

The major causal factors in this near multiple mishap were:

- No provision was made for an airborne standby tanker at destination.
- Inadvertent dumping of approximately 10,000 lbs of fuel by the KA-3 pathfinder, enroute. This loss of fuel placed the KA-3 in an emergency fuel situation, jeopardized the success of the remainder of the flight, and eliminated the only source of preplanned air refueling, approaching destination.
- Dissimilar aircraft (KA-3, A-7, and F-4) attempting to fly a max range profile.
- The large size of the flight (six aircraft) tended to make it somewhat unwieldy. Fortunately, the enroute weather was CAVU. Had the flight encountered IFR conditions enroute, flight integrity could only have been maintained at the expense of additional fuel.
- Actual headwinds were far in excess of the headwinds forecast for the second half of the flight. Little can be done about this, therefore, preflight planning to include this margin of error is mandatory.
- The change in navigational lead (from the KA-3 to the F-4) contributed to a large position error. This error was estimated to be 60-70 miles north of centerline.

The reporting command recommended that transPac flights:

- Be provided airborne standby tanker services at destination.
- Be conducted using only aircraft similar in performance.
- Be conducted with no more than four aircraft in the flight.

Phase of Flight

By LT H. C. Bowles, VA-46

THE CLANSMEN of Attack Squadron FORTY-SIX spike their AOMs with BIS (Back in the Saddle) reviews of carrier operating procedures, course rules, emergency procedures, and NATOPS quizzes. Nothing unusual there. The squadron has, however, supplemented their coverage of the various aspects of high-geared operation of the A-7B with a program they call POF (Phase of Flight).

The objective of the program is to fill the gaps between discussions of SOP, NATOPS, and emergencies. Every aspect of flight is covered. Each pilot has been assigned a phase of flight (post start/taxi, cat shot, climbout, rendezvous, formation, holding, EAT, etc.). He is the expert who has researched his assigned phase, gathered various viewpoints, knows the RAG's ideas on the subject, and is always ready to lead an AOM review of his phase.

The safety officer publishes a monthly schedule with a POF assigned for each day of the month. Each day's flight schedule carries the POF and the name of the expert in addition to the normal safety and weapons Questions of the Day. The POF expert is on call to discuss his phase with briefing flights and to lead off (safety first) an AOM if scheduled on his "day in the barrel."

The POF kickoff of AOMs is limited to 5 minutes on the clock and includes a short pitch by the expert on the recommended way of executing all or some part of his phase. A brief floor discussion follows. The idea here is to get old timers to share lessons learned concerning the phase, lessons which they have found useful in executing the phase in a more professional and safer way. The fresh talent from the RAG invariably tosses out the latest gouges and ideas being generated to RPs.

The squadron has found the program to be an exceptional way of stirring their pilots to add the little extras to the book-way of doing things. The program has been a significant contribution to the operational and safety practices being plied in the squadron.

An important benefit is derived in that nonstandard practices have a way of coming to light in the often-heated discussions, giving the skipper a chance to set "set minds" right.

051: Navy radar, how do you read?
GCA: 6051, loud and clear. Present weather: 600 broken, 1200 over, 2½ miles visibility, wind 190/15, duty runway 27, altimeter 30.12.
051: Roger your weather. Request GCA to 27 until contact, then circle to land 18.
GCA: Roger. Field elevation . . .

'Hello right hand, This is the left hand.'

THE C-1A broke out at 500 feet. The pilot switched to tower frequency and was cleared to turn downwind to land on 18. On final, the pilots noted a slight obscuration in the landing area.

When about 100 yards short of the runway threshold, it became apparent that heat waves were present – emitting from an A-3. The *Skywarrior* was positioned close aboard and perpendicular to the runway. Its jet exhaust was directed across runway 18.

The copilot, landing the aircraft, was warned by the plane commander, but it was too late. At an altitude of 10-15 feet, just as the copilot began his flare, he encountered the jet blast. The aircraft rolled hard left, not quite out of control. The copilot reacted quickly, and the aircraft answered right aileron and right rudder. A rapid control reversal followed as the aircraft flew out of the turbulence. It rolled hard right, but again, the copilot didn't let it get away from him. When he had full control, he landed about halfway down the runway, taxied to the line, shut down, and inspected the bird for damage. There was none.

The A-3 was parked on the west side of the runway, headed west, and manned by a turnup crew. The crew was conducting power checks using various power settings from idle to full bore. They were in contact with the tower and, when queried, replied they were at idle.

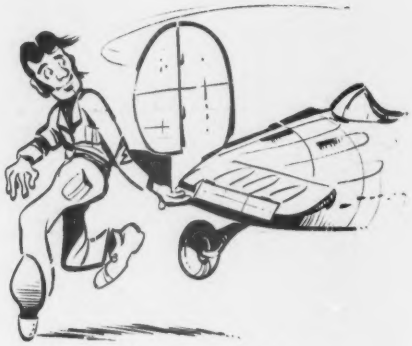
The tower cleared 051 to land, *but didn't notify the A-3 crew that an aircraft had been cleared to land behind them and/or to change turnup heading.* The *Skywarrior* crew went about their task and were at 85 percent when the landing aircraft passed through their jet blast.

Superb airmanship on the part of the pilot prevented a major aircraft accident. Investigation disclosed the long-standing practice of high-power turnups at that location – an accident waiting to happen. ◄

AVIATION SAFET

US Air Service NAT

Don't take the machine into the air unless you're satisfied it'll fly, and never leave the ground with the motor leaking.



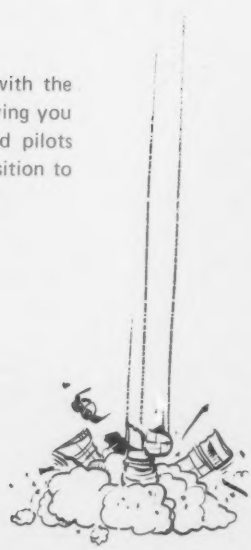
Don't turn sharply when taxiing. Instead of turning short, have someone lift the tail around.

In
ahead

Never get out of the machine with the motor running until the pilot relieving you can reach the engine controls; and pilots should carry hankies in a handy position to wipe off goggles.

Hedgehopping will not be t
no spins on back or tail slides
they unnecessarily strain the ma

Riding on the steps, wings, or tail of the machine is prohibited.



If an emergency occurs while flying, land as soon as possible.

Please note: Ma
lived to a ripe, old a
Will someone sa
cooperation can mak

TY AWARENESS

TOPS 1920 Vintage

Do not trust altitude instruments.

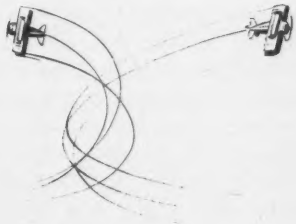
In case the engine fails on takeoff, land straight ahead – regardless of obstacles.

No machine must taxi faster than a man can walk.

Pilots will not wear spurs while flying.

be tolerated and above all ides will be indulged in, as he machine.

Before you begin a landing glide, see that no machines are under you.



If you see another machine near you, get out of its way.

Many of the gentlemen who believed and abided by the foregoing rules old age.

he say that about you 50 years from now? Today's NATOPS and your make it possible.

RADM J. D. Ramage, COMNAR/COMNAVAIRESFOR

FIRE IN FLIGHT!

THE BN's first sensation off the catapult was heat on his left thigh. He noted white smoke coming from the aft part of the center console and saw flames in the gap between the center console and the circuit breaker panel . . .

IMMEDIATELY after launch, the *Intruder's* cockpit filled with smoke. The pilot, having difficulty seeing the instruments, raised the gear and blew the canopy. As the smoke disappeared, he secured both generators and commenced a shallow left-hand turn downwind.

The KA-6D, on a tanker mission, had launched from the CVA at 54,000 lbs gross.

The aircraft flew a 3-mile arc around the port side of the ship at 500 to 1000 feet. During this time, the pilot turned the starboard generator on to jettison the five external droptanks. Although the generator apparently came on – as indicated by the jettisoning of the drops – the pilot got no other indications . . . and neither ICS nor UHF communications could be established.

Downwind, the B/N pulled all the circuit breakers while the pilot attempted to get a generator on the line to facilitate fuel dumping. Although the B/N was aware of flames in the cockpit during this phase, the pilot was not, and his actions were based on smoke alone.

Approaching the 180-degree position, the pilot deployed the RAT and selected wing fuel dump. Being heavy and not having a ready deck, the pilot realized he could not land on this pass and commenced a climb. At this time, the B/N was able to point out to the pilot flames coming from the center console. Although the B/N had considered ejecting twice earlier, he waited to make sure the pilot had reached the same conclusion.

Flying up the port side of the ship, the pilot motioned for the B/N to eject. Using the face curtain handle, the B/N ejected at 550 feet, 200 KIAS, wings level (see photos). The pilot made one more visual sweep of the cockpit to evaluate other courses of action, then ejected at 700 feet, 200 KIAS, wings level. The aircraft slowly rolled to the right and crashed into the water inverted. Both the B/N and pilot were subsequently rescued.

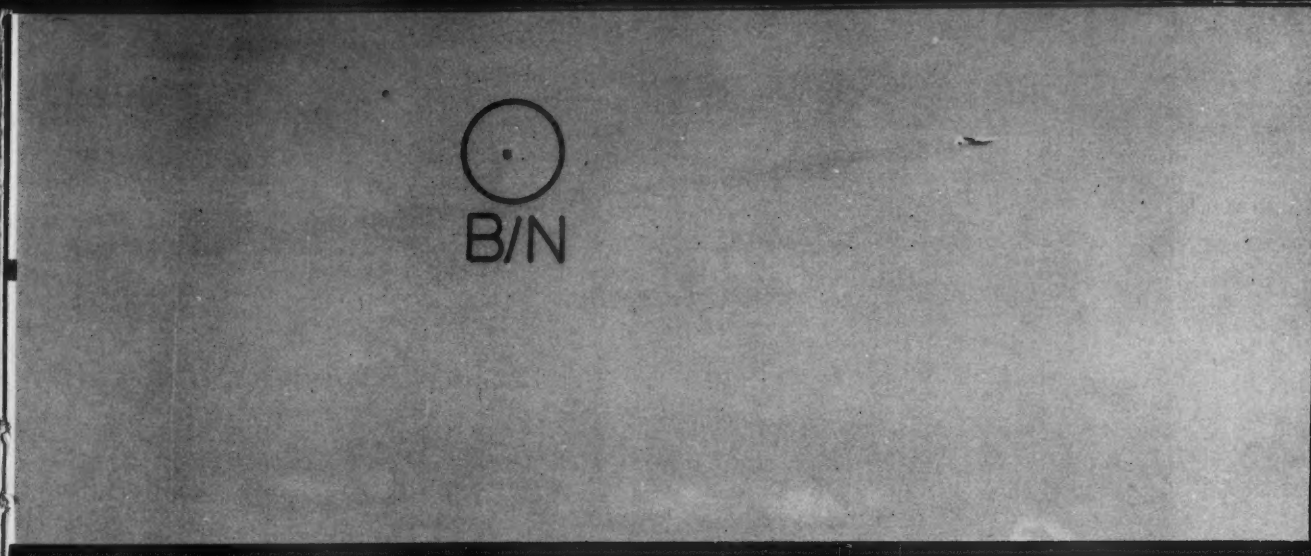
Investigation centered on the center console area where the fire was observed. Since the aircraft was lost at sea, the exact cause could not be determined. Because of the odors of the fumes, it is suspected that the fire was electrical in nature. The absence of combustible material in this area led investigators to suspect a possible oxygen-enriched atmosphere caused the fire. Sample materials from the center console of another aircraft were tested at temperatures up to 600°F, with negative results. In the presence of an oxygen/acetylene torch flame, however, the materials tested would ignite and burn. These materials included fiberglass, electrical wiring, and insulation.

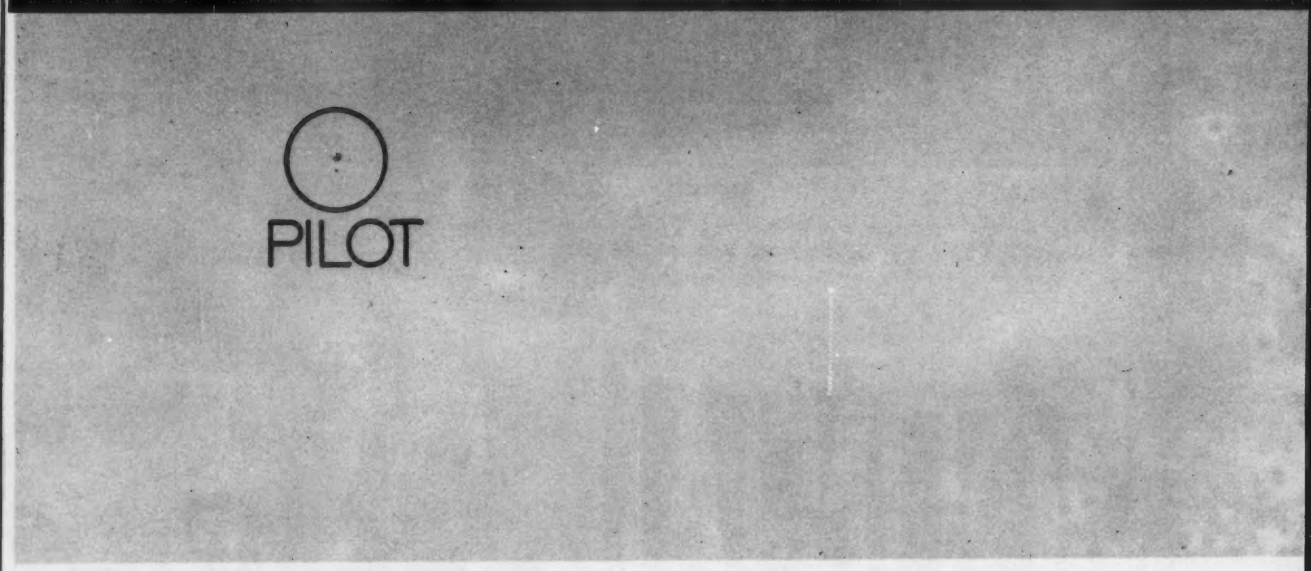
There was an oxygen connection in the area where the fire was sighted. Investigators considered this significant because in the 16 days prior to the accident, the aircraft had a series of oxygen gripes related to high consumption. The cause of this high consumption was never determined. The last written discrepancy was 4 days prior to the accident: "Used 4 liters in 1 hour." This discrepancy was signed off as "Checked system. Couldn't find leak. Replaced converter. Next pilot check."

The method used within the squadron to troubleshoot high oxygen consumption was: Replace the LOX converter. If high consumption continued, a bubble soap solution was applied to accessible connections and fittings. Unfortunately, the oxygen connection in the area where the fire occurred was not readily accessible and was not checked.

Another method of oxygen leak detection is described on page 3-166 of NAVAIR 01-85 ADA-2-23. A pressure testing unit, essentially a gage and fittings, is required. No pressure testing unit was available in the squadron prior to this accident. (A unit has since been constructed and works satisfactorily.)

Having a fire with flames in the cockpit at low altitude could have necessitated an immediate ejection. With both engines still functioning and the aircraft under control, however, the crew elected to combat the fire. There was a definite variance from NATOPS procedures; the crew never referred directly to the NATOPS Pocket Checklist. Instead, they attempted to recall the necessary procedures by memory. They began pulling circuit breakers on the center console to combat the fire





without considering what essential electrical circuits were being affected. When the RAT was pulled, they still couldn't regain ICS communication because the ICS circuit breaker had been pulled. The same was true of the caution lights and the fire-warning lights. This led to the pilot's confusion as to whether he had successfully restored electrical power by resetting the generators or extending the RAT.

Investigators concluded the most probable cause of the fire was an electrical short circuit which may have been aggravated by an oxygen-enriched atmosphere within the center console area. A contributing factor was the flight crew's failure to follow NATOPS procedures. The pilot secured both generators without pulling the RAT; the B/N never referred to the pocket checklist. Also, the persistent attempts by the pilot to reset the main generators might have continued to provide the ignition source, thus sustaining this emergency.

The aircraft mishap board recommended in part that:

(1) The squadron maintenance department should:

- Ensure strict compliance with MIMs regarding oxygen leaks.
- Clean the center console area during calendar inspections to ensure all foreign objects are removed.

(2) Aircrews should be trained to:

- Climb when faced with emergency situations at low altitude.
- Commit to memory the immediate response emergency procedures to combat fire in flight and refer to the pocket checklist when time permits. ◄

Winds 260/24 + 34
The wind direction and velocity provided an excellent opportunity to fly in the null area during . . .

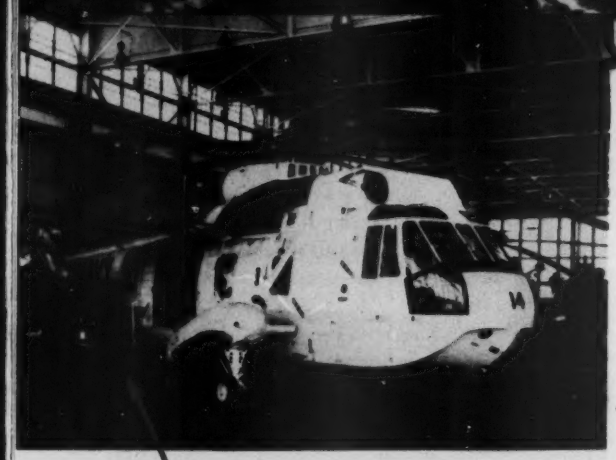
MOUNTAIN FLYING PRACTICE

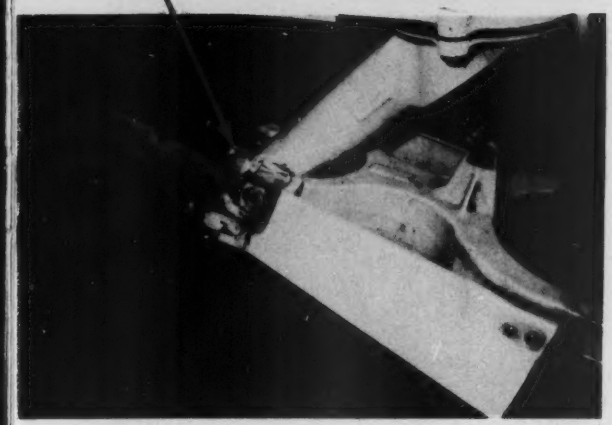
AN H-3, properly fueled and preflighted, was tied down at NAS Halfway awaiting the flight crew. Two jaygees and an AMH3 crew chief soon climbed aboard and departed on a training flight.

Enroute, the two pilots reviewed rough terrain/mountain flying search patterns. They discussed headings and airspeeds and the effects of wind on a helicopter in ridge and valley areas. Their winds that day were ideal for training in flying in null areas.

They entered a canyon at 1000 feet MSL (about 100 feet below ridge top and 700 feet AGL – canyon floor) headed into the wind. The helicopter lurched and pitched and rolled and yawed as the two pilots experienced moderate to severe turbulence. They had expected the relatively calm condition of a null area.

The HAC elected to discontinue flying in that uncomfortable area and began to climb out of the canyon by proceeding toward the center. At approximately 1500 feet MSL, a downdraft caught the helo. In the ensuing descent, the aircraft struck the top wire of a three-layered series of powerlines stretching across the canyon.





The helicopter pitched forward upon impact with the powerline. Nevertheless, the HAC maintained control and descended toward a dirt road for an emergency landing. After landing, the helicopter crew chief discovered a broken tailwheel fairing.

During the inspection, the pilot kept the rotors turning because the helicopter was on an incline. There were no unusual vibrations or power or flight control abnormalities, so the HAC flew back to base.

The powerlines were unmarked and virtually invisible against the mountain background.

The flight was an approved SAR training flight and was flown at a relatively safe altitude. What the two inexperienced pilots did not take into consideration was that a null area is relatively small in size, but turbulence and strong downdrafts exist for a much greater distance. Apparently, the pilots never got to the null area.

Future mountain SAR training flights will be conducted in areas free of navigational hazards. Further, minimum altitudes of 200 feet above ridge tops have been established, and the area within 25 miles of base will be surveyed to chart all obstacles 200 feet AGL. Major powerlines within 50 miles of the base will also be charted.

Operations officers of other NAS/MCASs might very well benefit from the experience of this helicopter crew (and another crew narrated in "License to Steal," January '73 APPROACH) and chart all obstructions over 100 feet AGL within a certain radius of their air station. Why wait? No one wants to be third. ◄

Watch that Switch!

By LT P. D. McGovern
ASO HS-11

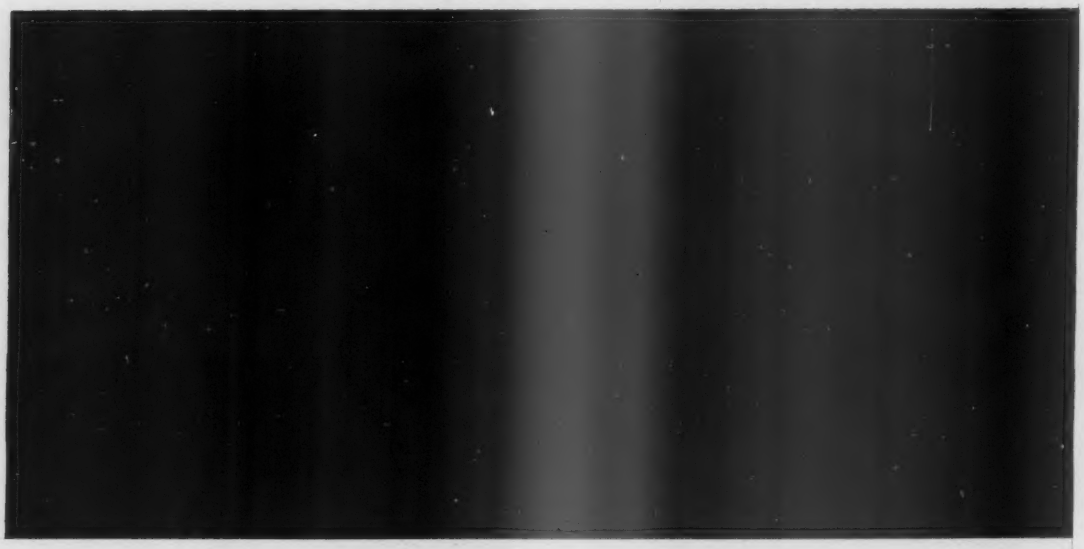
ONE of the more exciting true-life adventures experienced by our squadron of late occurred during a night UNREP. One of our SH-3Ds was providing lifeguard service a mile astern of the carrier when No. 2 engine suddenly flamed out. It failed because the copilot closed the No. 2 engine fuel valve while intending to close the fuel crossfeed switch. Fortunately, the aircraft was light enough to hover on one engine (though only after descending to within 10 feet of the water), and the HAC was able to fly it out, somewhat shaken, with no damage to the aircraft.

The first reaction to this incident might be "dumb copilot" and "give that guy a memento in his logbook to straighten him out." Hopefully, other H-3 drivers will read of the incident and be more wary when crossfeeding fuel.

But this is not the full story. Investigation of the incident brought out some interesting parallels: Numerous aircrewmen reported that securing No. 2 fuel valve vice the fuel crossfeed was an all-too-regular occurrence among RPs in both RAGs and copilots in their previous squadrons. All the more experienced H-3 drivers in the squadron (1000 or more hours) had instances to relate of either catching the copilot with his hand on the No. 2 engine fuel valve or of reopening the fuel valve fast enough to prevent flameout!

The problem, then, seems far more commonplace than previously realized. No one is too anxious to report miscues like that because there's no excuse for it. Or is there? The three switches on the H-3 fuel management panel are identical and in close proximity to one another. Unless the copilot concentrates his attention completely on securing the fuel crossfeed, chances are very good that the wrong switch will get secured. Then the rotor RPM goes down and the pulse rate goes up.

A simple solution to the problem would be to rotate the fuel crossfeed switch 90 degrees so that it opens and closes with a horizontal motion as opposed to the vertical motion of the engine fuel valves. We have proposed this as an ECP (engineering change proposal). In the meantime, a warning to H-3 operators that their fuel panel isn't the physiokineticist's dream. *You've got to watch that switch!* ◄



notes from your flight surgeon

Water Burns

YOU should never put any kind of chemical in an unmarked container. By doing so, you could be the unwitting cause of your buddy's injury or even death.

In a naval air station hobby shop, some navymen were working on a welding project involving a slide apparatus for an upcoming squadron function.

Somebody had picked up what he thought was a can of water to cool parts of the machine next to the area being welded. During the welding, the slide apparatus caught fire, and somebody else emptied the can of "water" on it. The fire instantly intensified, burning a man standing nearby.

Obviously, the liquid in the can was not water. It was a cleaning solvent.

Another safety message here for whoever put the solvent in the can in the first place: *Flammable liquids should never be kept in open containers.*

Smoke and Dye

AFTER ejecting over water, the crew of an F-4 pinpointed their positions to orbiting search aircraft with smoke and dye.

Visibility of the dye marker reportedly was excellent up to FL200. In spite of fairly heavy seas, the dye lasted 40 minutes.

At no time did the pilot and RIO, who were some 300 yards apart, fire smoke signals simultaneously, the squadron survival officer reports. They both conserved their Mk-13 Mod O's and used them when necessity dictated.

Caught

ABOARD a CVA, an ABEAN was doing routine maintenance work on the arresting gear. Specifically, he was connecting a crossdeck pendant to an arresting gear purchase cable. This requires lining up a set of holes on the cable and pendant, then inserting a bolt. A special device called a "bullet" is used to line up the holes and is hammered through the holes with the bolt attached.

The ABEAN had been told many times not to insert his finger in the holes to try to line them up. Nevertheless, he did so. When the heavy crossdeck pendant shifted under its own weight, the tip of his finger was cut off.

There's a reason behind every safety rule. You may get away with breaking one once – or even two or three times or more – but in the end it catches up with you.

Learn from Others

"UNSAFE practices, deviation from prescribed procedures, and overconfidence breeding a false sense of security are all insidious byproducts of a long string of accident-free flight hours. Each one of us who maintains or flies aircraft is highly susceptible to a mental attitude which could allow taking an unnecessary risk or making an imprudent rationalization.

"I recognize that hindsight is 20-20, but if we are unable to learn and profit by the mistakes of others, we are headed for a tragic lesson . . . It is imperative that each of us give very careful thought to the professional approach we take toward our job. Learning by another's error in judgment is a step forward, while waiting for tragedy to teach us is foolhardy."

Excerpt from CAG message

Weathershield Red

NEITHER the pilot nor the RIO ejecting from an F-4 was aware of the high-visibility feature of the LR-1 liferaft, investigators reported. Aircraft overhead could not see the rafts.

The top of the LR-1 weathershield is non-gloss dark blue, but the inside of the weathershield is bright red. If you are in your raft and you want SAR aircraft to see you, unfasten the weathershield and turn it so the red side shows.

Safety Value

IN a helicopter ditching, two crewmen had their helmet visors down and two did not.

"The former were spared facial injury," says the investigating flight surgeon, "whereas the latter received multiple facial contusions, abrasions, and lacerations.

"These observations again emphasize the safety value of proper use of protective helmet and visor during *all* phases of flight ops." ◄

The 24-Hour Survival Kit

To use the signal mirror, first obtain a spot of reflected light on your hand in front of the mirror. While sighting this spot, bring your hand in front of the area of sky or land to be scanned. Take your hand away. Sighting the area to be scanned in the hole, tilt the mirror back and forth.

By LCDR William S. Barry, MC, USNR

The following article should tell you everything you ever wanted to know about the new SRU-31/P, 24-hour survival kit, but didn't know who to ask. The author, who took part in Operation Homecoming, was stationed at Cubi Point when he wrote this article for APPROACH.

IMPROVED rescue techniques and capabilities have reduced the time an aviator may expect to be in a survival situation. According to data in the December 1972 APPROACH, around the world (non-combat), 84 percent of total airmen recovered were rescued within 1 hour of touchdown, and 99 percent of those recovered were picked up within 24 hours. In Vietnam (combat), 58 percent of the airmen recovered were rescued within 1 hour of touchdown, and 97 percent within 24 hours. Associated with this reduction in time spent in a survival situation is the continuing effort for reduction in volume and weight of survival equipment.

The new survival kit designed for a 24-hour period is the SRU-31/P. It replaces the SEEK-2 kit. The SRU-31/P contains only 23 items, compared to 42 items in the SEEK-2, and there are three big improvements in design: first, velcro tabs replace the gummy adhesive used in SEEK-2; second, the general survival items appear better separated from the medical survival items, making them easier to find; third, the new kit provides an optional compartment in each packet to hold additional items as desired. Although the overall number of items has decreased, a number of new items have been added. Items in each compartment will be discussed in this article in addition to optional items which are available. *Unless otherwise noted, the shelf life for survival items is 5 years.*

- **Medical Compartment (1A)**

Sterile wound coverings are a necessary item in any first aid kit. This kit contains a roll of gauze bandage, bandaids, and adhesive tape. The adhesive tape is a low allergenic type. Because of the possible deteriorating effects of heat and moisture, the tape and bandaids should be checked every 12 months. *They should be replaced every 2 years.*

Bacitracin antibiotic ophthalmic ointment is provided for use in eye injuries. It can also be used on burns, cuts, or abrasions on other areas of the body. *The expiration date of this medication is on both the tube and the cardboard box in which the kit is shipped.*

Any injury to the eye will be painful and will limit activity. It may also result in permanent damage unless treated early. Treatment consists first of removing any foreign object beneath the eyelid or on the surface of the eye. You can use the signal mirror in the general portion of the kit to spot any dirt particles. A small amount of moist gauze held in the tweezers can be used to gently flick away or pick up moist foreign objects (dirt) in the eye. *Any object penetrating the globe of the eye should not be removed except by a doctor.* After removal of superficial dirt particles, you should apply

The tiny spot of light at the road edge right of picture center is light reflected from the silver side of the space blanket.

bacitracin ointment beneath the eyelid. The eye should then be closed to spread the ointment over its surface. Tape the eyelid shut to provide a protective cover.

Most eye injuries are superficial and will heal within 24 to 48 hours. *Any eye injury, however, no matter how minor it appears, should be seen and treated by a doctor as soon as possible.*

Soap is provided to prevent contamination and infection of any wound, abrasion, or burn. Any injury will rapidly progress to a more serious form if infection occurs. You must take care when using soap along with the benzalkonium chloride, the reddish antiseptic liquid provided in the standard Aircraft First Aid Kit. Both the soap and the liquid antiseptic have surface-acting properties against bacteria, and the combination tends to neutralize the effectiveness of either agent. The soap must be thoroughly rinsed off before applying anything else to the wound.

The medical compartment also contains a tube of combination sunburn lotion and insect repellent. Remember, the time spent in preventive medicine by using this tube is worth a jug of lotion applied to a painful sunburn or a bottle of pills to cure malaria. Also apply this lotion to your mosquito headnet and mittens.

The water purification tablets should be used with any water that is not boiled. Use two tablets per quart of water, and shake the container well. Wait 20 minutes before you drink the treated water. Before you drink, allow some of the purified water to rinse the lip of the

Rescue/signal/medical instructions are printed on your space blanket.

water container. This will wash the area that comes in contact with your lips – it may have originally been contaminated. *These tablets have a 2-year shelf life.*

Pain medication provided is Darvon (propoxyphene hydrochloride) capsules. You may take one capsule every 4 hours for pain or headache, up to five capsules in a 24-hour period. (*The expiration date of this medication should be noted. It is being replaced by aspirin in aluminum foil strips. – Ed.*)

Don't overlook the fact that a headache could be caused by excessive sweating and that you could be close to heat exhaustion. Salt, fluids, and rest in a cool, shaded area are indicated for this condition, *not pain medication*.

Packet No. 1 of the SRU-31/P survival kit contains medical items.

Relief from diarrhea and cramps is provided by Lomotil (diphenoxylate hydrochloride) tablets. You can take two of these tablets three or four times a day. *Their shelf life is 4 years.*

Remember that prolonged, severe diarrhea can cause tremendous loss of fluids from the body. You can stop eating, but you must take in potable water to compensate for these losses. As the gastrointestinal irritation subsides, the periods between bowel movements increase. The longer the bowel contents remain in the system, the more fluid is absorbed and the firmer the stool becomes.

A waterproof container (condom, prophylactic) is available in the kit. It has a number of survival uses. A post-WW II study "999 Survived, An Analysis of Survival Experiences in the Southwest Pacific" (ADTIC Publication T-100, 1949) indicated some of these.

The condom, for instance, can be used as a waterproof container to hold matches, pills, or other items which must be kept dry. Several cups of water can be kept in it for use as an emergency canteen. To secure the container to a belt and to prevent its rupturing when used as a water carrier, you can put it in your mosquito headnet or mittens.

When faced with a water survival situation with a wound of the hand or foot, you could have a problem keeping bandages dry to prevent maceration of wounds. Under these conditions, slip the condom over the bandage for a waterproof covering.

A waterproofed medication instruction sheet is also included in this compartment.

• Optional Medical Compartment (1B)

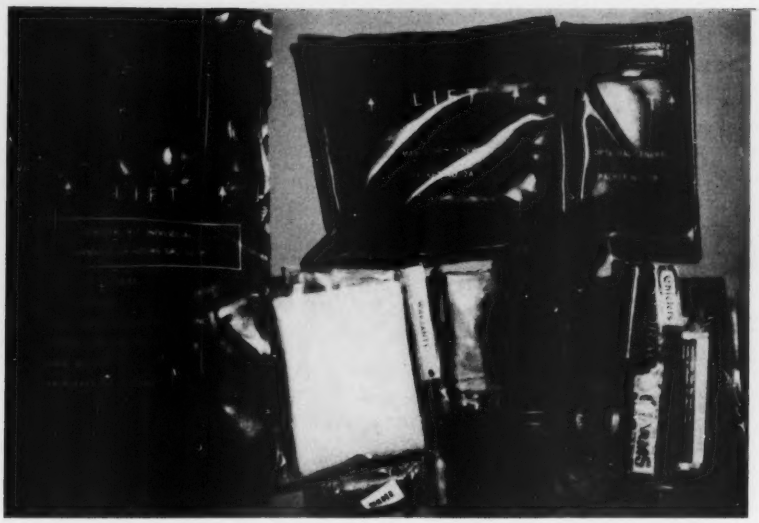
Discussed below are some of the medical items available for possible inclusion in the optional compartment. Most of these have more than one use, and the first two items are considered to be important for most situations. The following two items are useful for a combat situation.

1. *Camouflaged, non-pneumatic (canvas) tourniquet, FSN 6515-323-0565.* The tourniquet should be pre-looped so you can slip it on using only one hand. This item is more useful as a pressure bandage than as a tourniquet. First, slip the canvas tourniquet over a gauze bandage covering the bleeding wound. Tighten it until the bleeding stops, then loosen it slightly. If you apply the pressure bandage properly, pulse, color, and feeling in your extremity should be normal.

This item should be used as a tourniquet *only for severe, uncontrollable arterial bleeding* (bright red, pulsing blood unaffected by constant pressure applied over a bandage). *Once the tourniquet is applied, it should not be removed except by a doctor.* Loss of the limb or gangrene may result if the tourniquet is left on too long.

Another use for the canvas tourniquet is as an emergency belt to carry survival equipment. Such equipment could include the survival packets and water canteen which are designed to be carried on a belt.

2. *Beef bouillon cubes.* Salt tablets and bouillon cubes which were provided in the SEEK-2 kit have been eliminated. Yet, the bouillon cubes can provide 1) salt



Packet No. 2 of the SRU-31/P survival kit contains general items.

necessary to prevent heat cramps, heat exhaustion, or heat stroke; 2) seasoning for any gathered food; and 3) a food supplement. As with salt tablets, the cubes should only be used when sufficient fresh water is available.

3. *Cold climate, pigmented Chapstick, FSN 8510-270-0017.* Normally, Chapstick is used to prevent chapped or sunburned lips. It also provides an important combat function – you can use it as a small, soft camouflage stick to break up facial contours and tone down your skin color on hands and face.

4. *Camouflaged gauze bandage, FSN 6510-200-3180.* The white gauze bandage in the kit could prove detrimental in a combat or evasion situation. This tan gauze can replace or supplement the white gauze provided, if the situation warrants.

5. *Sodium bicarbonate and sodium chloride in a 4.5 gm packet, FSN 6505-663-2636.* When dissolved in water, this provides a physiologic solution that can be taken orally to help prevent shock. *No liquids or fluids should be given to any unconscious person.*

- **General Compartment (2A)**

Despite the fact that fires were not made by aviators downed in Vietnam, the possibility exists that a winter survival situation could arise in a different area of the world. A fire for warmth and food preparation would then be needed.

Fire-starting materials comprise a "metal match" and a packet of tinder. The metal match is a composite of various metals to constitute a good spark source. Because of the different electrical potentials of the metals, the match acts as a self-contained battery. This "battery effect" occurs when it is exposed to water, especially salt water or sweat. The results, which may take several months to occur, will be a decreased diameter of the match and a powdered and pocked surface. Such deterioration, which can be prevented by keeping the metal match dry and wiping it dry when wet, will not prevent production of a good spark. In the older kits, the tinder, a reddish powder in a clear plastic packet, was unmarked, but this has generally been corrected.

In starting a fire using the metal match, use a portion of the tinder over material collected for the fire. Without trying to produce a spark, scrape a small amount of metal powder from the metal match into a small area of the tinder. Then strike a spark to ignite the tinder. Remember that the type, size, and burning time of a fire does not depend upon the source of ignition but rather on the *preparation* of materials and the *skill* of the fire builder.

A small, metal signal mirror is provided. Unlike previous signal mirrors, this one has no instructions on it. To use it, first obtain a spot of reflected light on your hand held in front of the mirror. Then view this spot through the hole in the mirror. While maintaining the light spot visually on your hand, bring your hand in front of the area of sea, sky, or land to be scanned. Take your hand away from in front of the mirror and, maintaining the area to be scanned visually in the hole, tilt the mirror as required to "flash the target."

There are new, red (infra-red) and blue filters in the SRU-31/P. (The SEEK-2 kit contained colored sheets of plastic.) The new filters are shaped to fit over the strobe light, yet they still roll to a small size in the kit. In a night combat situation, you should be able to tell which filter you are using by feel. The red filter has a smooth, blunt end, while the blue filter is in a hood opposite the notched end that fits over the strobe.

The kit contains a mosquito headnet and mittens. This is a boon in making the 24-hours-before-rescue less miserable from insect bites. I would personally like to see future kits with nets colored green or olive, or even camouflaged for easier concealment.

The small, folding, safety razor can be used to open the various plastic bags containing the different items and to cut bandages or material. (Parachute cloth makes a fine non-adhesive covering for keeping burns

protected.) If an extremity swells, clothing may constrict your circulation, and the clothing may have to be cut away. The razor can also be used as an emergency knife.

The tweezers can be used to remove imbedded insect stingers as well as splinters or other objects, thus reducing sources of infection. Insect stingers may have the venom sacs still attached. When removing them, you must avoid squeezing additional venom into your skin.

You can use the safety pins along with the tweezers to repair torn clothing or to secure bandage dressings.

A new item is the folding water canteen, marked off in pints. The canteen is looped to fit on a belt. The small neck, designed to make drinking easy, folds for closure and is secured by velcro.

Do not ignore the pouches the survival kit comes in; you can use them to hold extra water when it is available.

Another new item is the space blanket – bright orange on one side and silver on the other. You can use this as shelter material for protection against heat (silver side out) or against cold (silver side in), rain, snow, or wind. Since multiplace liferafts no longer have shelter covers, if you find yourself in a water survival situation in a raft, this blanket can serve to reduce exposure.

The bright orange surface of the blanket can be used as a signal sheet to attract attention. Rescue signal information and survival first aid notes are printed in the center of the orange surface. These instructions tend to rub off with exposure to water and repeated folding. Therefore, as a safeguard, you should try to memorize this information.

The blanket provides a larger area (55 inches square) than the square yard of day-glow material often carried by aircrews. But it's only 2/3 as heavy and 1/3 as bulky when folded.

The remaining items in this compartment are food. The Charms supply calories and sugar to help sustain mental and physical activity. The Chicklets chewing gum will help relieve thirst and provide some sugar intake. The coffee candy provides additional sugar and also caffeine to help keep you alert.

There are 13 items in the general packet. Don't forget the outside pouch and the two-compartment packet as additional survival items. They can be used to carry water or food or to keep collected fire material dry.

The small plastic bags around each item in the kit can be used to keep matches, medication, or food dry. They can also be cut to provide plastic sheets. Such an airtight sheet is necessary to cover a sucking chest wound.

A sucking chest wound acts as a one-way valve, letting air into the chest with each breath but not letting it out. This causes a build-up of air between the chest wall and the lung, and eventually the lung collapses.

The plastic can also be used as waterproofing material to cover a bandage. The heavy duty, green plastic can be cut and slit for use as antiglare goggles where there is bright snow or sand.

A compass and wrist band are provided for direction finding.

- **Optional General Compartment (2B)**

The general portion of the survival kit contains all the equipment necessary for survival. You can add a few "luxury items" if you like, such as:

1. Waterproof matches and/or candle.

2. The saw/knife from the SEEK-2 kit that uses the pen flare as a handle.

3. Blanket, combat, casualty (56″ x 96″), FSN 7210-936-6666. This blanket is silver on one side and olive green on the other. It would constitute an additional, larger blanket if you were downed in a cold environment. It lacks rescue signal and first aid information, however.

4. Folded, heavy duty aluminum foil. This is useful as a fire reflector or wrapping for cooking, and it can be folded to make cups, pans, etc.

5. Personalized survival and rescue notes. These could be most useful if the survival situation becomes prolonged.

Location of the Survival Kit

There is one additional thing you need to know about the survival kit, and that is where to find it when it is needed.

Upon reporting to a new unit or after any announced changes in the kit, personally check where the kit is located in your equipment. Fighter, attack, or training aircraft should have the kit in the seat pack. Crewmembers of other aircraft will still have the kit in the survival vest. Units differ in their efficiency in making the changes to seat packs in aircraft where they are required, and the best policy is to check personally. If the kit is in the survival vest, in which side is the medical packet? If it's in the seat pack, can you put a hand into it and find both packets in the dark?

Know what equipment you have, how to use it, and where to find it – even in the dark. If you are mentally and physically prepared to survive – the odds are in your favor. ◄

Chance is a word void of sense; nothing can exist without cause.
Voltaire

Sling Slack

OK, all you SH-3 operators, "PAY ATTENTION!" Here's an incident worth thinking about.

An SH-3G crew was practicing live hoists. A wet crewman and a "victim" were in the water for a second pickup. The sling lowered normally, and the two hooked on for the vertical ride. When the crewman in the helo received a thumbs up, he began to raise the cable. At that moment, the instructor SAR crewman saw the hoist cable begin to unravel. Before any action could be taken, the cable jammed. The men in the sling were lowered back into the water.

It wasn't easy to get the message to them. How do you tell someone in the water you have a jammed hoist? Eventually, the intent of the helo crewman (for them to release the sling and swim clear) sank in, and they were picked up by a duty rescue boat.

The opinion of those who investigated the frayed cable was that slack caused the level-wind mechanism to malfunction. Deck checks of helicopter hoists verify that level wind will sometimes malfunction if tension is not kept on the cable as it is being retracted.

The investigators also recommended that a hand signal be established to indicate jammed hoist. Send your ideas to the model manager.

The Constellation Eridanus.

Letters

Shocking Experience

Naval Amphibious Base, Norfolk, Va. – The excellent illustration on the inside back cover of the April 1973 issue of "APPROACH" certainly captures the urgency associated with any rescue evolution.

Unfortunately, the drawing depicts what I contend would be a potentially dangerous practice for any survivor. That is, attempting to grasp the rescue sling before it touches the water.

So doing will provide a "shocking experience," to say the very least, for the survivor. For he would discharge the static electricity built up by the helicopter rotor system through his body.

Crewmen lowered into the water from a helicopter rescue hoist can suffer the same fate as their feet contact the water. Those experiencing this phenomenon contend it's "quite a jolt." Definitely not the sort of thing a pilot needs to complete his rescue.

LCDR Don Mohr
COMPHIBGRU Two Staff

● The illustration (from a previous article) shows a *Skywarrior* crewman being offered a sling after 5½ hours in the water, during which time he lost his helmet. Having bailed out near mid-ocean at 2130, he reportedly was surprised when he hit the water sooner than expected. As you point out, he could be in for another surprise. In this rescue, however, the hoist had been dragged in the water prior to being offered to the downed crewman.

Show It To Me In Writing!

NAS Alameda – On this day, I was checking a discrepancy on one of our helicopters. I observed on the neighboring line an S-2D at high power with one chock and no tiedowns.

I hot-footed it to their maintenance control and informed one chief electrician's mate in charge there and was given the old salt dodge – "show it to me in writing!" If this is the safety-minded attitude of the senior PO of this squadron, I'll bet nobody else cares either. What upset me, this aircraft was directly across from our helo, maybe 200 feet away. Need I say more?

AMH1 James A. Jackson

● Dammit anyway! Why *anyone* could overlook and condone such an obvious hazard is beyond us! To save our sanity – please say you reported the whole incident to your CO.

What Price Readiness

FPO, New York – The accompanying photograph was taken during a deployment. Cannibalization actions against the "queen" were quite high. You might say supply support during the cruise left something to be desired.

You can't see everything that has been removed, but even a casual glance will reveal quite a bit. I can guarantee you that the aircraft was loaded with red

tags. One of our mechs affixed the sign.

Aviation Safety Officer

● Thanks for the photo. All too often, the first plane down doesn't stand a chance.

It's a Girl!

NAS, Brunswick – Now, that's downright male chauvinism to refer to your Life Sciences Editor as "himself" (Letters, pp. 30, April 1973 APPROACH). Now that we have a Wave admiral, Wave student aviators, Wave SeaBees and Wave doctors in our service, it's time we exposed APPROACH's Life Science

FLIP Changes

THE DEFENSE Mapping Agency, St. Louis, Missouri, has notified the Naval Safety Center of the following changes to FLIP documents:

• *Improved Approach Lighting Legend Code.* An improved approach light system legend has been developed and is now published on the inside back cover of the U.S. Instrument Approach Procedures books. A dot is used in the circled code for a particular type of approach lighting system to indicate that the system also includes sequenced flashers (running strobes). The revised symbol and circled code will be placed on the Aerodrome Sketch portion of approach procedures charts when the chart is updated for any other reason.

• *Flight Service Station Identifiers.* Effective with the 26 April 1973 issue, FAA will phase in a change to the FSS boxes on Enroute Charts by substituting the proper coded identifiers for the letters FSS. This change will facilitate locating stations on the Civil NOTAM network when the FSS station name and identifier is different from the associated aerodrome or navaid.

• *Enroute Chart Legend Change.* The Aerodromes Legend on the U.S. Enroute Low Altitude Charts has been expanded to read:

Aerodromes/Seadromes shown in BLUE have an approved Low Altitude Instrument Approach Procedure published. Those shown in DARK BLUE have an approved DOD Low Altitude Instrument Approach Procedure and/or approved DOD RADAR MINIMA published in DOD FLIPS. Aerodromes/Seadromes shown in BROWN do *not* have a published Instrument Approach Procedure.

Editor for what she is . . . a damned fine expert in the field!

C. F. Clark, Jr.
Resources Management Officer

• **You're right.**

Flight Gear

NAS, Anywhere – How about a little help for the guy between the rock and the hard spot – the PR branch officer?

On one side, I've got 37 aviators who believe and have been told throughout most of their careers that "survival is a personal thing." On the other hand, I've got a group of conscientious pararriggers who are determined to follow NAVAIR 13-1-6.7 rigorously, just as they've been taught in their professional schools. I have yet to see a squadron strictly comply with this manual because of the unwillingness of a high percentage of aviators to accept the changes. (Result: bitter aviators and persecuted PRs.)

An article is sorely needed explaining who designs our gear, what *their* qualifications are, and how much effort is involved in the design and redesign of our survival equipment. Also, the article should make it clear that it is the commanding officer's responsibility to ensure that NAVAIR 13-1-6.7 is followed, if that is the Navy's intention, for without his support (he may not like the Navy's directed changes in equipment either), it never will be.

Mediatormouse

• Once it's agreed that a survival equipment requirement is justified and funds are available, NADC (Naval Air Development Center) is tasked to come up with a new article to meet the requirement. The new design is eventually evaluated by OPTEVFOR (Operational Test and Evaluation Force) or, at times, by fleet squadrons on both the east and west coasts. Based on these evaluation reports, the design either goes into production or is rejected.

Why isn't everybody happy with the prescribed personal survival gear? Whenever you have a large group, majority decision rules – there's seldom 100% agreement that something is great. Also, more often than we like, problems are encountered with manufacturing and quality control. Another factor is that when other services such as the Air Force and Army have an equivalent piece of gear, many may feel it is "better" because it's different. When the group has standardized equipment and one has something "different," then he becomes an individual. And, let's face it, even in the uniformed services, people like to be individuals.

When the Safety Center talks about life support equipment being *"personal,"* we mean *personal* attention, and *personal* use to achieve *personal* survival. We are definitely for standardized equipment. It has been evaluated and meets design standards. A very good reason for using standard Navy equipment is that this is the equipment your training is based upon. In an emergency, non-standard equipment could become a very real problem.

You are right about the necessity for the squadron CO to support the program by leadership and example – *personal* example, we might say. He is the key man.

We'll put an article on who designs our personal survival equipment and flight gear on the "drawing board." ◄

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request.

Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, Va. 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Vol. 19 **approach** No. 2

RADM W. S. Nelson
Commander, Naval Safety Center
Publisher

Our product is safety, our process is education and our profit is measured in the preservation of lives and equipment and increased mission readiness.

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Credits

Our August cover painting by staff artist Blake Rader shows the Navy's Sea Control helicopter, the Sikorsky SH-3H. Pg 24-27 Photos: LCDR William S. Barry. IBC Photos: VP-40.

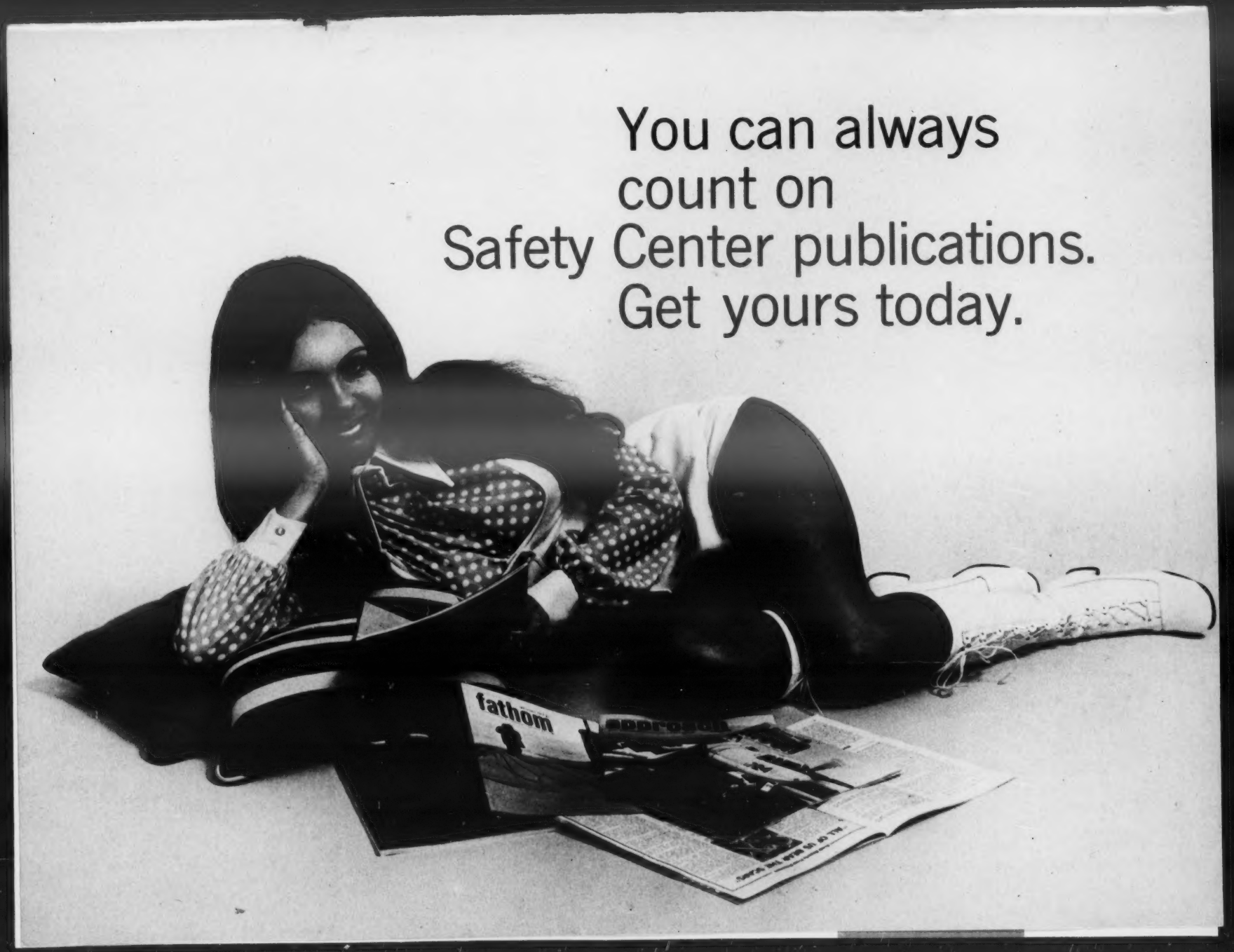
Excellent adaptation of poster by VP-40.

Make the Safety Officer Smile

Use NATOPS

See the Safety Officer Smile

Smile, Safety Officer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